

Appl. No.: 10/538,982
Response to Office communication dated: 11/2/06
Attorney Docket: LUNGBJ/107/PC/US

AMENDMENT TO THE CLAIMS

Please amend the claims as follows:

Claims 1-14 (cancelled)

15. (currently amended) An autocontrol burner includes a main body, a fuel supplying means, an air blowing means, a fuel oil atomizing means and a igniter, wherein it further includes a controller, a motor speed controller and a signal acquisition assembly, in which the fuel supplying means and the air blowing means are connected with the controller via the motor speed controller, the signal output port of the signal acquisition assembly is connected with the signal input port of the controller, flow rate of fuel oil output by the fuel supplying means and flow rate of air blown by the air blowing means are adjusted automatically, simultaneously and proportionally by said controller based on preset air/oil ratio,

wherein said controller includes a program control unit, said program control unit includes an air/oil ratio modifying and determining unit for re-setting the air/oil ratio randomly, and calculating required flow rate of air based on outputting flow rate of the fuel oil and new air/oil ratio, and regulating the rotation speed of said blower fan to adjust flow rate of air.

16. (currently amended) The autocontrol burner according to claim 15, wherein said fuel supplying means is a gear or screw type oil pump, and the air blowing means is a blower fan, and the fuel oil atomizing means is an internal-mixing type pneumatic atomizing spray gun, and the igniter is a gas ignition gun, and the signal acquisition assembly includes a flame monitor, an oil pressure transmitter and an atomized gas pressure switch etc, and the signal acquisition end of the flame monitor is located nearby the position of flame jet, and the oil pressure transmitter is located at the inlet of the oil way of the spray gun, the atomized gas pressure switch is located locate at the inlet of the atomized gas, and said motor speed

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controller is an AC converter or DC motor governor, or AC motor electromagnetic governor.

17. (original) The autocontrol burner according to claim 15, wherein said controller is a programmable controller, or an industrial control unit.

18. (currently amended) The autocontrol burner according to claim 16, wherein said controller includes a program control unit[[.]] which further includes;

an atomized gas pressure determining unit for determining whether the atomized gas pressure reaches preset value, if not, then it can't be ignited;

a spray gun back pressure determining unit for determining whether atomized fuel oil gas pressure is within the presetting range;

a flame ignition determining unit for determining whether the ignition gun is ignited, if it is the case, regulating the fuel pump and the fuel injecting valve to output fuel oil;

a fuel oil ignition determining unit for determining whether the flame of fuel oil is ignited, if it is the case, then calculating required flow rate of air based on preset air/oil ratio and outputting flow rate of the fuel oil, and regulating the blower fan to blow air;

a fuel oil switch determining unit for determining whether the kind of fuel oil is varied, and calculating required flow rate of air based on corresponding preset air/oil ratio, and regulating the blower fan to blow air.

19. (cancelled)

20. (original) The autocontrol burner according to claim 16, wherein said program control unit further includes a flame intensity variation determining unit for determining the signal of variation of flame intensity, and correspondingly adjusting outputting flow rate of the fuel oil, and calculating required flow rate of air based on

air/oil ratio, and regulating the blower fan to blow air.

21. (currently amended) The autocontrol burner according to claim 16, wherein said controller further includes a system operation state monitoring unit, for determining atomized gas pressure, fuel pressure, flame condition, state of the spray gun, flame opening, air/oil ratio as well as temperature control signal, and showing the operation state out by an [[a]] information inputting/displaying means.

22. (original) The autocontrol burner according to claim 21, wherein said controller is further connected with an alarm means, for receiving abnormal signal from system operation state monitoring unit, and giving out sound/light alarm.

23. (original) The autocontrol burner according to claim 18, wherein said fuel oil switch unit further includes a fuel oil pressure determining unit and a fuel oil switching valve determining unit, for determining the operation state of the fuel oil atomizing means, and determining the switch state of the fuel oil switching valve, thereby determining whether the kind of fuel oil varies.

24. (previously presented) The autocontrol burner according to claim 16, wherein there is an electromagnetic valve as an ignition gas valve in the pipeline connecting the ignition gun, and there is an electromagnetic valve as an atomized gas valve in the pipeline connecting atomized gas pressure switch with the spray gun, and there is an electromagnetic valve as a fuel injecting valve in the pipeline connecting the oil pump with the input port of the spray gun, in which the signal input port of said ignition gas valve, said atomized gas valve and said fuel injecting valve is respectively connected with the signal output port of the controller, and the signal output port of said controller is further connected with an electromagnetic valve as an fuel oil switching valve, and the input port of the fuel oil switching valve is respectively connected with pipelines for various kinds of fuel, and the output port

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thereof is connected with the input port of the oil pump.

25. (original) The autocontrol burner according to claim 24, wherein said controller is connected with an information inputting/displaying means.

26. (original) The autocontrol burner according to claim 25, wherein signal input port of said controller is connected with a temperature controlling instrument.

27. (original) The autocontrol burner according to claim 26, wherein said control unit further includes a temperature self-controlling unit for judging the signal from the temperature controlling instrument, thereby achieving closed loop temperature control of the autocontrol burner.